

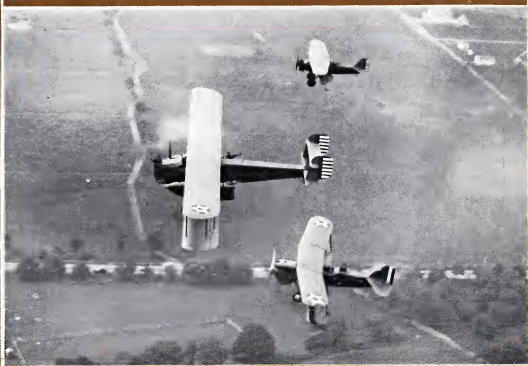
# AVIATION

*The Oldest American Aeronautical Magazine*

JULY 25, 1927

Issued Weekly

PRICE 15 CENTS



The Curtiss "Condor" bomber in flight with a Curtiss "Falcon" and "Hawk" escort

VOLUME  
XXIII

## SPECIAL FEATURES

NUMBER  
4

CURTISS BUILDS LARGEST ALL METAL BOMBER  
THE STOUT TWELVE PASSENGER AIR TRANSPORT  
DESCRIPTIVE NOTES ON THE FORD TOUR PLANES

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# National Reliability Tour

*First*

**EDDIE STINSON**  
**Stinson Monoplane**  
*Wright Whirlwind Engine*

*Second*

**R. G. PAGE**  
**Hamilton Monoplane**  
*Wright Whirlwind Engine*

*Third*

**HARVEY MUMMERT**  
**Aerial Service "Mercury"**  
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*Model 460D used on  
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with **CHAMBERLIN**  
into Germany

with **MAITLAND**  
to Hawaii

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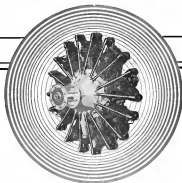
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# 1928 and this business of selling airplanes

## Airplane Merchandising Job Wanted

EVERY airplane manufacturer must now face the fact that aviation has entered a new era. The old production methods and the old selling methods must be done the old way.

Aviation is now an industry. Business methods must prevail—definite, practical, merchandising plans must be made and executed. A period of intense study and comparison is about at hand. New and sure ways of doing it will not be believed in just yet; airplanes—some of you will never see before.

One or two of these companies are going to spring out in advance of all the rest, and will find themselves almost overnight as big producers. And by big production we do not mean one hundred or two hundred or five hundred ships. We mean five thousand or ten thousand ships in a single year.

Aviation can be sold in large quantities today. There are a half dozen manufacturers who can legally be said to sell from one thousand to ten thousand ships next year. Perhaps it will be one of the smaller factors that will do it, but they will not remain small long.

Colin Campbell has said, "It is not enough that goods are made, a demand for them must also be made." It is in the line of aviation, producing through the demands created by advertising that very much of the success of the American aviation system lies.

This is particularly true of the airplane industry. There is a vast, latent market for airplanes. The first manufacturer who explains the advertising, selling, and merchandising plans proved successful by other industries, multiplied and changed when necessary, is going to get a head start over all competitors. Every manufacturer will have to come to this. The airplanes will multiply by the small, competing manufacturers of tomorrow.

The advertising agency responsible for the advertisement represents a man who wants a product with a sound, well-planned merchandising campaign. The whole change of advertising and general sales promotion.

His experience qualifies him. He has had experience of ten years advertising and merchandising experience. He has held such positions as advertising manager, sales and

promotion manager, has been the head of an advertising agency, and has been in sold work for an automobile manufacturer planning for and executing their sales.

He understands merchandising and sales promotion in their broadest sense. He knows how to sell airplanes, how to line up a dealer group that will market America, and knows how to get every dollar worth money. He is capable of making, planning the details of and executing the entire distribution of a factory. He has an extensive and varied.

As he understands advertising, he knows to fly in the air of public and when a ship leaves the ground was completely simple for anything. He has been in close contact with writers, copy men, and understands the possibilities and the responsibilities of period city officials. He knows how to organize a book, and can get out of money, or construct a wing.

This man has devoted five years of his day holding the position as chief of airplane sales and distribution. He says the day has come.

This man is in his forty-third, married, is good health and is willing to leave anywhere that offers him an opportunity to produce. He expects compensation only as proportion to the results he brings.

He has brain and imagination. He finds no trouble, much and can adjust intelligently and efficiently to any advertising, your selling methods and your product. He can catch the nerve and the momentum of the world and force them to your product and make them move your ship or help they want to without it.

With a reasonable dressing around he would make compensation in a hour of a percentage of the gross sales. The best is not necessary. Any decent, successful company can afford him. He is employed here, of course, but not in relation, and is available to other nations. Some aircraft company has probably been looking for just such a man as this, who wants a definite job and finally believes in it. Contact him. He will see the agency will bring a prompt reply about five him.

Mr. X,

**Derek White, Inc.**

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Los Angeles, Cal.

# AVIATION

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## With the Editor

In the early days of the World War the opposing armies had nothing to fear from each other as regards being fired upon. The nearest armistice that they knew were used only for observation and snail work. Then, according to history, came the day when a Russian pilot went ahead with a pistol and emptied it in the direction of an enemy aviator who seemed to fly by. Needless to say, the attack was an absolute failure, but it was the beginning of the art of aerial warfare that progressed from pistols and shotguns to the introduction of lead machine guns and finally to the aerial rigid gun that is synchronized to shoot between the revolving propeller blades.

On page 190 of this issue of AVIATION is a description of the new Curtiss "Condor" bomber that was recently flown at Dayton, Ohio. It is the largest bomber ever to be constructed and is equipped with an aerial machine gun so mounted that attacking fire from any angle can be returned. The Condor has practically no "blind spots", the presence of which was the cause of more than one plane going down in flames during the War.



## Smith and Bronte Fly Single Engined Plane From California to Hawaii

### Make Forced Landing in Trees on Island of Molokai When Fuel Supply Gives Out

[illegible]

### Take Off Delayed Three Hours

The take off from Oakland was delayed for three hours due to fog and a false start when the plane hit a cat. But finally when Smith, who was at the controls, got the plane into the air he cruised over the surrounding country for 100 miles and then set out on his solitary course. The first radio report from the plane was that it was 100 mi off the coast.

and a second one came through about an hour later. Although no position was given, Madden was made that the radio broadcast was coming in clear. "Pig was reported to have contacted me at 12:30 a.m.," he said. "I received from Ray, who functioned as navigator, that the radio recording was going all right. From time to time, Madden's voice was received by various stations. One of the plane's passengers was the guest, but at 6:15 on Friday morning, when still 780 on the lead, Brown sent out SOS signals and word that fuel for only one hour's flying remained in the tank. Several minutes later a second SOS was heard, but this time it was stated that a few hours fuel would be enough."

### 8.8. Wilhelmia Receives 508 Call

Upon receiving the SOS call, the steamship *Wilhelm*, which was at the time 72 mi. away from the spot where the SOS was heard, altered its course and steamed full speed ahead to effect a rescue. Two other ships, the liner *President Foose* and the Army transport *Knows*, which had received the distress calls steamed towards the point where it was estimated that the flier would come down.

As hour after hour was received from Brown to the effect that they were going to land in the water, and to send help at once. Then for four hours and one half no news was received at all until at last word came out of the town of Kaa-



Saint and Bunato passing over San Francisco on cable in 1906.

PRACTICE WHAT YOU PREACH — USE THE AIR MAIL

Later that afternoon they were picked up by a group of 12 Army planes and flown to Wheeler Field where they landed amid the roar of gun salutes.

In commenting on the trip, the Bears are reported to have stated that when still 500 m or more from land, the failure of these gasolines pump led them to believe their fuel was running extremely low and it caused the plane to lose so much altitude that the trailing streamer antenna struck the sea and



Example and Smith exhibit heads before the onset of their flight.

was torn away. The decrease in altitude had the effect of accumulating the gasoline pump and they shot up into the air again and headed for land without knowing how long they would last, without knowing whether their cabin had been hard and merciful or their hearse.

Fog was encountered for almost the entire flight and the first land sighted was the peak of Mauna Loa on the island of Hawaii. Altering their course the Stinson headed for Oahu and Wheeler Field but the fog gave out at Midland.

The landing was made in the town as they considered it less dangerous than to try to land in the swamps. According to Smith the plane was damaged beyond all hope of repair. Only the engine and instruments can be salvaged and Smith intends to take them back to America with him when he returns.

Smith and Bronte are Ex-Service Men

Both Ernest L. Smith and Emory B. Rooste, California to Hawaii 4122, 220 en-service men. During the World War Smith served as flying instructor at March Field, while Rooste saw service aboard the USS Sigsbee on patrol duty in the Atlantic.

Ernest L. Smith was born in Reno, Nev., in 1893. After completing his early schooling, he attended the University of California at Berkeley for two years, then participated at

The affiliated colleges in San Francisco as a dental student. Before his course was completed the United States entered the World War, and Smith enrolled in the Medical Corps and was sent to the officers' training school at Alton, Ill. He was transferred later to the air corps.

His first training in aviation was at the Army ground school at Berkeley. He was transferred to Rockwell Field, San Diego, as flying cadet, and was later commissioned as a second lieutenant and made an aviator. The last overseas theater of the war he served as an commander at March Field, near Hayward, Calif. In 1929 he joined the aviation branch at the Army Reserve Corps, and in 1930 became a pilot in the forest air patrol service of the Department of Agriculture. In December, 1935, he went on the staff of the Pacific Air Transport Co. as a pilot.

Emory B. Roscoe was born in New York City twenty-three years ago. When he was fifteen he went to sea as an ordinary seaman, and when the United States entered the World War he enlisted in the navy and served aboard the U.S.S. Seaguard on patrol duty in the Atlantic.

After the war he entered the service of the Italian Line out of New York and remained with the company until 1933. He held an admitted master's license for any tonnage on any ocean at the time he was selected as navigator for South

Freese went to California in 1923 and entered the employ of the McDermitt Steamship Co., and later became Pacific Coast representative of the Government's Inland Waterways Corp., with headquarters at the custom house, San Francisco. He is the author of a textbook on navigation, "Practical Navigation," and is recognized as an authority on the subject.

### Colonel Lindbergh's Itinerary

The itinerary of Col. Charles A. Landburgh's recent tour of the country in his brass-plated plane "Spirit of St. Louis" is as follows:

July 28 to 30—Hartford, Providence, Boston, Portland, Melrose, Concord, N. H.; Springfield, Vt., Albany, Buffalo, and Syracuse.

August 1 to 15—Cleveland, Pittsburgh, Wheeling, Dayton, Cincinnati, Louisville, Indianapolis, Detroit, Grand Rapids, Chicago and St. Louis.

August 16 to 31—The Tri-Cities—Malina, Desmoines, and Rock Island, Milwaukee, Madison; Twin Cities—St. Paul and Minneapolis; Little Falls, Fargo, Sioux City, Des Moines.

September 1 to 15—Chicago, Salt Lake City, Boise, Butte, Spokane, Seattle and Portland.

**October 1 to 15—Little Rock, Memphis, Nashville, Birmingham**

October 16 to 20—Baltimore, Atlantic City, Washington.

Short stops will be made at Schenectady, Erie, Springfield, Ill., St. Joseph, Mo., Sioux Falls, S. D., Locksburg, N. C.,

Official Detroit Bulletin Board, Elmwood

### Official Detroit Balloon Race Figures

The official distance figures of the first four editions to place in the recent Bird annual balloon race for The Detroit News Tribune are as follows:

First, Gerald A. U. Hermanns, Detroit 2, 572 mi.  
Second, E. J. Hill and A. G. Goldsman, Detroit 3, 395 mi.  
Third, J. A. Routhier, Goodhue 5, 335 mi.

By his victory, Estessore, representing the Detroit Firing Club, won a cash prize of \$380 and possession of The De-



# Thirteen Planes Finish the Third Ford Reliability Tour

Eddie Stinson Wins First Place, R. G. Page Second and H. C. Mummet Third

THE THIRD Ford Reliability Tour ended at Detroit, Mich., on July 12 in a gale which blew over houses and trees, but which did not delay any of the thirteen planes which completed the tour. The finish was the most spectacular part of a tour which was so regular and uneventful as to be almost monotonous. Of the thirteen planes which started one was withdrawn for general reasons, while another was so seriously delayed by engine trouble that it was disqualified from the prize money although it completed the tour. The remainder with which the competitors completed the twenty-five legs of the first thousand mile tour was a wonderful demonstration of the reliability which has been achieved by modern airplanes and engines, headed by experienced pilots.

Eddie Stinson, the winner of the tour, was far as the last throughout the whole trip, but the last day almost lost him his position, for the landing gear on his plane broke when he came down at Grand Rapids, and as he slowed down the plane tilted over so that it came to rest with one wing on the ground. For a while it looked as if the plane could not be repaired on that day but eventually, even his competitors who would have profited by his delay, pitched in and helped

make a temporary repair so that he got off to Detroit on schedule time. This was not the only experience of the last day at flying but when the planes were about 30 minutes out from Detroit they ran into an astonishing violent wind and thunderstorm. The planes were severely tested ahead and when the competitors were not too busy landing on their levelled down and was soon being blown over, some struck by lightning and the various other dangerous conditions which accompany such a storm. Each pilot came through thinking that the others would probably not survive and when the storm was over and each one as he landed was quite surprised to find that others had also arrived. For a while there was some anxiety felt for the Army plane carrying Ray Collins, the tour referee, but the Army pilot had very wisely flown around the storm and came in peacefully enough after the storm had cleared.

The rain and wind did not shake the enthusiasm of the group who had come out to welcome Eddie Stinson, however, the natural and the housing of the rest of the planes was rather confined due to weather conditions. The rain had dampened most of the spectators and added the wet side shoes but the pilots were extremely busy tending to their



Left to right: Mac. Sabin, Edward P. Sabin, Ross Macle Sabin, Harvey J. Klemmer, Chas. E. Frank, W. A. Niles and Edward Stinson.

PRACTICE WHAT YOU PREACH — USE THE AIR MAIL.

own affairs and for the time being were not as interested in the playlets of the crowd as in taking care of their planes and seeing that they did not get blown over.

In the evening a dinner was given in the Elms and to the passengers who accompanied the tour. There was over five hundred audience present including representatives from the leading news clubs in Detroit. The Ford Trophy was presented to Eddie Stinson by Edsel Ford and speeches were



(Commercial Photo Service)  
The Race Reception.

made by the Mayor at Detroit, William F. Macomber, Jr., Harold Emerson and Mayor Leopold.

On the following day the rain and pilots for next year's tour were discussed at a luncheon and the first list of those planning in the tour received their prize money.

The final name in the tour was issued by L. E. G. Bruce and R. P. Crockett the official course drivers.

Stinson-Detwiler monoplane, Miss Wayne, Eddie Stinson, pilot, 9603.7.  
Hawthorn Monoplane, Randolph G. Page, pilot, 7643.5.  
Messery, Harvey C. Mummet, pilot, 7691.  
Waco, John P. Wood, pilot, 6857.  
Stinson-Detwiler biplane, Leonard S. Pils, pilot, 6386.  
Ryan, Frank M. Eberly, pilot, 5595.  
Waco, John Paul Balke, pilot, 5955.5.  
Waco, Chas. W. Meyer, pilot, 5622.9.  
Buhl Arradon, Leon G. Meester, pilot, 3278.  
Pittman Malheur, H. A. Elliott, 5693.5.  
Waco, E. W. Corbush, pilot, 3723.

The starting of the planes was as a matter of fact, finally decided during the preliminary tour before the planes left Detroit. The signs of merit for the winning plane was to much greater than that of any of the other planes that it

was certain to win when held back by engine trouble or bad luck. The only real race was between the Hawthorn monoplane and Mummet's Hawkeye. The Hawthorn had a better figure of merit but engine trouble on several legs of the flight brought delays and heavy penalties on his scores and it was not until the last day that Hawthorn pulled ahead. Mummet was the only pilot who had flown in both the other two races. In both instances he would have either won the tour or else placed well except for the bad luck which distressed him toward the end of the trip. John P. Wood as he flew Waco 16 ran a close race with the Stinson-Detwiler biplane. The latter plane was carrying a heavier load but the Waco was faster. From the showing made in the actual tour it was evident that all of the Waco planes had not opened up fully during the speed tests in Detroit. Doubtless, however, whether that Waco No. 11 averaged nearly 233 m.p.h. during the tour. A study of the Waco scores showed that they were never making the perfect score that they say of the other contestants. This was done by deliberately making a few figures of merit at the beginning in order that they might come as near as possible to having a perfect score at the end.

The big three engaged Ford plane was entered in the tour at the very last minute in order that there should be 14 instead of 13 planes in the tour. The plane was fourth place



The Stinson-Detwiler with a Douglas DC at the background.

but the Ford officials very directly decided not to make it eligible for prize money. The plane carried a useful load of only 1,500 lb. but with this load it efficiently maintained its altitude with one engine completely stopped. This was necessary in order that the plane pass the requirement that a given aerial test be carried for every leg. All present recognized that this year's tour exposed Ford seemed to pay here very much better than last year's plane and that there was a distinct improvement in design.

In comparing the scores of the various planes in the tour



The Stinson-Detwiler with a Douglas DC at the background.

NATIONAL AIR RACES, SPOKANE, WASH., SEPT. 23, 1924

It should be remembered that as rapid formula can give the whole story of a plane's performance. The stock and engine had to be in order the ground rules here a considerable element of luck and the skill of a pilot in landing a very heavily loaded plane is a most important factor. The Ryan and several other engines could probably have earned considerably more weight if the pilots had used in many tests which would make the plane buoy in the air of what was difficult to handle in case of a forced landing. This year the formula seems to have worked against the open cockpit plane such as the Eagle, the Waco and the Pittman which have a high performance but carry a light load. The speed and quick take off of these planes did not counterbalance their lack of load carrying ability. This is a major objection though for in the future is primarily designed to demonstrate the reliability and efficiency of engines for practical service in view is achieved even though a perfect method of scoring has not as yet been evolved.

#### Alexander Aircraft Has Bad Luck

The Alexander Aircraft ran into some bad luck. The new Eagle fitted with a Whirlwind engine broke a piston at Pittsburgh and again could not be made before the plane is now disqualified from further official participation in the race. The other Eagle was previously entered by Paul H. Russell. Russell learned to fly but fell and concluding that his plane was the only one left in the race he did not go to it in as he did. Although the plane was only required to maintain 50 per cent of their maximum speed in actual service the engine was kept about half open most of the time. Considering that the engine was over 4,000 cc, the engine stood up remarkably well. There were only two actual forced landings due to engine trouble. Besides that there were two landings due to trouble with the gas lines, and two due to shortages of fuel. There were no landings

due to fog or bad weather. During a large part of the trip very hot weather was encountered and there was considerable difficulty with valve springs. As there were twelve planes in the race equipped with Whirlwind engines and in case of them were the three engines had the total engine mileage was somewhere over 50,000 mi. and considering the conditions under which the engines were operated the fact was another demonstration of the reliability of the Whirlwind. Except for the trouble with the Illinois landing gear practically no difficulties or failures were experienced by the planes themselves. In this respect there seems to be a considerable advance over previous years. The Illinois plane was very heavily loaded and it was built in a very short time. Work on the plane was started only a week before the race began. The structure of the fuselage was started at an office one evening and completed by eight o'clock the next morning. That is certainly fast work and the Illinois factory organization deserves its share of credit along with Eddie Brown who piloted the plane.

In good weather conditions on the trip were good and there was a prevalence of following winds. For most of the trip there were 12 passengers and pilots in the boat. A number of ladies accompanied the boat among them being Miss Frank H. Hawks who now has the distinction of holding the world's distance record for an actual bicyclist. From the pilot's standpoint the boat was pretty much of a hindrance after all and there was not much justification as on some previous trips. Many of the pilots who led the race in previous years were not entered in this year's contest and besides the trip was of such length that it could not be taken lightly. The arrival of the boat at many of the towns did not bring out large crowds and it was generally felt that there should be more advanced publicity and that the manufacturers should have more time to demonstrate their planes at the important centers. Both the previous years were held in the fall and



The Biplane in 1921 and 1922 was entry of the biplane from Curtiss (Curtiss Co., Inc.)

in order of the manufacturers were unable to get planes ready in time to enter this year's contest. Considerable work was also shown on that side of the conventional engine factories are generally based on designs and could not give the attention to the race which they would have done otherwise.

A discussion of the race and of changes to next year's rules was attended by the participants the day after the race ended. Consensus to the suggestion which had been proposed by the previous lack of work of the pilots the necessity of those present at the meeting decided to use the rules remain same as they were this year. It was tentatively agreed that next year's race should be held in the latter

part of June and the majority seemed to favor a three weeks race with longer stop days of overnight stops. The stock and formula and the 85 per cent of maximum speed rating also seemed satisfactory. It was decided that the points to be gained or lost per hp should depend on the length of the flight involved. It was accordingly voted by the pilots that they would like to have the prize money increased in ways and means for doing this were not suggested. During the meeting Mr. Mayo announced that the new airplane, the Ryan or Waco, would be given his whole attention for making the race and next year. In concluding a strong note of thanks was given to the Detroit Board of Commerce for their efforts and suggestions in furthering the race.



Left to right: William P. MacCracken, secretary of commerce; Robert H. Ford, head of the Navy; Eddie Brown, winner of the Third National Air Race; and Paul H. Russell, pilot of the Eagle.

#### Manager of Spokane Races Flies to New York

Major John T. Fowler, commander, first day, the first day, Washington Post, and manager director of the National Air Race, to be held this year at Spokane, Wash., Sept. 23 and 24, arrived in New York on July 16, as a promoter in a Douglas Airplane, about in place, after making a flight from the Pacific Coast, a little over 3000 miles, flying time.

He reports that various cities are preparing to put up big prizes for the National Air Race, and that to Spokane, which will add a considerable sum to the prize money of \$250,000 which will be paid in prize to the contestants at Spokane time.

Letters to be received for the first civilian trans-continental air derby indicate that practically all the medium cost aerial planes will be represented.

Major Fowler announced shortly after his arrival in New York, that Colonel Richard B. Ford had arrived to act as an official of the race derby. Commander Ford, commanding on the race derby, said:

"The aviation trials planned in the Spokane Derby were as much to the future of commercial aviation as to the future of the military service. I hope that the public will realize this fact and give them the support they deserve."

"The New York to Spokane course for standard stock models in 1916, and 300-horsepower engine marks a milestone in aviation. It was met by its competitors as a long series of tests. Although, it was not as productive of speed advancement to all aviation, and I am sure that it will demonstrate the ability of flying today."

An effort is also being made to have Colonel Lamberton attend the races at Spokane. His line of the country is the interest of aviation calls for a stop at Spokane some time before the race, but it is hoped his schedule may be changed slightly to make his visit coincide with the air meet.

#### Fokker Monoplane Bomber for Army Use

A Fokker monoplane to be used as an Army bomber is now being constructed at the factory of the Atlantic Aircraft Corp., Hawthorne Heights, N. J.

It will be the first monoplane bomber built in this country and will be delivered to the Government before the end of the summer, after test flights and bombing tests. It is stated the bomber will be equipped with two Pratt and Whitney "Wasp" engines, of 425 hp each.

By using two instead of three motors, the Government intends to make room for a machine gun in a turret at the rear of the fuselage, where in the Fokker engine place the control engine is placed. A second machine gun will be placed just aft of the cockpit.

The two guns will comprise the plane's offensive weapons. The bomber will be capable of lifting a total load of 3500 lb. of that load 2000 lb. will be high explosives. First tests are expected to be made on Aug. 3 at Mitchell Field, L. I., by Lewis E. Rogers, Hethen and Harry Johnson. Bombing tests are to be made later at Dayton, O.

#### Falsely Represent Gates Flying Circus

The Gates Flying Circus has been in need in Arizona that the point of Laramie, Wyo., on July 16 for two men who accompanied themselves in being informed with the Gates Flying Circus and other reputable associations. There men it is alleged have defrauded business men of tens of thousands of dollars. Recent reports have come from British, Texas, and a crowd of 1000 has been offered for the capture of these men. Recent business men who have been defrauded have blamed claims in several and in a few magazines for newspaper incidents have been advised to identify themselves.

## Curtiss Builds Largest All Metal Bomber

*The "Condor", Twin Engine Bomber Gives Fine Performance Before Army Air Corps Officials at Mitchell Field, L. I.*

WHAT IS claimed to be the largest all metal bomber ever built in the United States was recently turned over to the Army Air Corps by the Curtiss Aeroplane and Motor Co. of Garden City, L. I., New York. The "Condor" (XIII-2) is a biplane powered by two Curtiss 850 hp. radial engines.

Following a thorough inspection at Mitchell Field, L. I., by T. Thomas Dwyer, assistant secretary of war for aircraft, and officers from Wright Field, the plane made its initial flight with Lieutenant Eugene Burton and Henry Johnson as the pilot. Though the first flight was short, both Burton and Johnson were enthralled over the performance of the plane. Due to the increased efficiency of the general purpose plane, the plane has an immediate climb with a comparatively short take-off. It has an estimated high speed of 120 m.p.h. and a cruising speed of 800 m.p.h. at approximately 100 m.p.h.

The Condor carries a crew of five men—one pilot, one bombardier, and three machine gunners. The problem of the best distribution of the personnel in the airplane was given very careful consideration by Army Air Corps bombing experts and Curtiss engineers. The unique arrangement which was finally worked out is said to be one of the most satisfactory ever made in a bombing plane. The three machine gunners are so located as to be able to ward off attacks by hostile aircraft from any quarter. One is stationed at the nose of the machine, where his two Lewis guns command the entire arc forward, above, or below the plane. The others, instead of being aimed in the fuselage as formerly, are stationed in the rear part of the engine nacelles. This unique arrangement of the rear gunners provides an unobstructed area of

fire to the rear. The fire of all three gunners can be made to intersect at any point a hundred feet or more distant from the plane, making it decidedly undesirable for enemy aircraft to approach.

The pilot is located in the conventional position in the forward part of the fuselage. As the plane is fitted with dual side-by-side control, in case of an emergency, an injury to the pilot, the bombardier, whose station is just forward and below the pilot, can step into the seat and to the pilot and fly the plane. Likewise, the forward gunner, in an emergency, can occupy the bombardier's position, and vice versa. As the seat in the machine gun, in an emergency, slides into the cockpit, the personnel at all stations is safe-shelterable. The rear gunner can double duty, lie one in the right nacelle in radio operator and the one in the left nacelle as photographer. Thus the Condor, in addition to its primary function, is completely equipped to carry out reconnaissance and photographic missions.

### Weight Empty is 9026 Lb.

Structurally, the Condor contains many features of interest. The entire structure is of metal, of which the greatest part is aluminum. The fuselage, tail and wing ribs are of duralumin, with the wing lower, upper, lower, bomb bay, and other highly stressed parts of alloy steel.

It is of interest to note that the empty weight was 9029 lb. as compared to the 9020 lb. actually calculated. In other words, the weight error was approximately one-half of one per cent.

The wings of the Condor are of fully conventional design.



Side view of the new Curtiss "Condor" Army bomber.

(Amm)

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Front view of the Curtiss "Condor" Army bomber equipped with two Curtiss 850-hp. engines and six Lewis machine guns.

There is no stagger at wingtips, the upper wing being fast across the top making the lower wing like a diamond of three degrees. Both the upper and lower wings have an angle of incidence of 10 deg. The central section is the C-32, a development of the Curtiss wing model. The wing beams are built of two elliptical tubes with welded struts, one facing a vacuum tube. The entire wing beam is of welded bent treated aluminum-aluminum steel. The ribs are built up of riveted duralumin. The only non-metal feature of the plane is the wing covering which is of fabric. The wing is provided with automatic inspection windows, covered with transparent celluloid.

The fuselage is of duralumin tubing except in the highly stressed parts. Fittings are of steel tubing or of steel and fastened into the tubing with hollow steel tubular rivets. A Warren truss system is used, eliminating wire bracing.

The two Curtiss 850-hp. engines develop 800 hp. at 1400 r.p.m. engine speed, or 1200 m.p.h. propeller speed. Due to the low speed and high power, two Curtiss-Road propellers of 24 ft. diameter, weighing 220 lb. each are used. These are the largest Curtiss-Road propellers ever built. On the ground, the prop can be rotated as in other metal propellers.

### Stability Not Affected by Switch Load

Behind each engine, in the nacelle, is a dual tank of 200 gal. This arrangement is very important, as it places the fuel, along with the bombs, directly in line with the center of gravity. In this way the longitudinal stability of the plane is not affected by a difference in the fuel or bomb load moved. In addition to these two tanks, there is a quantity tank in the upper wing directly above the fuselage. As both engines are fed from this one tank, a dual fuel system was worked out enabling either main fuel tank to be used. By means of three valves all tanks can be supplied in all amounts. The fuel pump on the gravity tank is outside, while those on the main tank are on the instrument board, a hydraulic system being used. Above each engine is a radiator, neatly covered to minimize the resistance. These are driven in direct of the radiator which, when closed, give the radiator a stream-line form.

The legs 54 in. landing wheels, carrying a load of four tons each, are provided with hydraulic wheel brakes, developed by Curtiss engineers in cooperation with the Lockheed Corporation. The brakes can be applied independently, aiding the maneuverability on the ground. The shock absorber unit, on both wheels and tail wheel, is a combination coil and rubber type. The shock absorber on the wheels of which there are five of each, and on the tail, have a travel of six

two inches, providing extremely smooth riding on the ground.

The controls are all of simple design. As there are no exposed wires, the plane has exceptionally clean lines. The aileron control is in the lower wing with a direct connection to the upper and lower ailerons. The tail surfaces are controlled



View of main tank with machine guns in fixed mounting. International News Red

from the tail of the fuselage. As both the horizontal and vertical surfaces are double, a strut connects the movable surfaces. The movement of the rudder stick is actuated by a lever in the footstep, where the strut passes over the fixed legs. As the lower aileron gear passes through the fixed

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# The Stout Twelve Passenger Air Transport

**Build Entirely of Duralumin, is Powered by Three Engines and Has Cruising Radius of 500 Miles**

FULLY REALIZING the commercial possibilities of commercial aviation the Ford Motor Co. has emphasized that its aircraft and resources are entirely behind the development of aviation and the Ford plane. The Stout Metal Airplane Co., division of the Ford Motor Co. has produced the A-12, a three engine twelve passenger transport designed for airline work. It is built entirely of metal having a high lift tapered wing set high in the fuselage. In most places of the entire three Wright Wheland engines are used, one at the nose and the other two mounted below the wings. One plane of this type has been built with a Pratt and Whitney Wasp on the nose and two Wheland below the wings.

## Wing of Multi-Spar Construction

Though the plane is constructed entirely of duralumin no protective coating is used, the Ford company claiming that the metal need only be kept clean to prevent corrosion. All sections are simple in outline and easy to repair. It is said that every rivet in the plane can be replaced without taking off the covering. The 916 is duralumin covering is incorporated as it carries the major stresses. The coverings run parallel to the flying direction.

The wing is of multi-spar construction with the computer ribs forming both the rib structure and the webbing. There are three spars tapering from 2 ft. 5 in. at the fuselage to 8 in. at the tip. With the ribs riveted to these spars a very rigid structure results.

It is almost impossible to build a thick wing without suitable bracing and yet one must build the wing at its proper angle without flatter. By use of the ribs as structure, the entire becomes a tube which is very rigid against bending, so that no bracing of the wings are taken place.

The fuselage is built up of transverse bulkheads with the corrugated covering riveted to the outside. The sides, which has all the modern conveniences, are 5 ft. high, 18 ft. long

and 4½ ft. wide, with the interior divided into five separate compartments. The forward compartment is the control cabin, the upper part of which is entirely enclosed in glass. It is entered through a door from the main cabin in the rear and contains seats for two pilots who are provided with dual control. In front of the pilot seat is mounted the instrument board containing the navigating instruments. The throttle and ignition controls are mounted on a panel at the rear



View up at the three spaced Ford motors.

of the instrument board where they are immediately accessible to either pilot. Behind the control and just ahead of the wing, is located a small observation compartment equipped with windows in the upper half and through which an excellent view may be had in all directions. The space under the seats may be used for storage.

The main cabin is located immediately behind the wing. It is fitted with sixteen chairs, and mounted on the front wall is plain view of the passengers, is an slanted indicator and

altitude. The A-12 built for the Standard Oil Co. (Indiana) has an extra cabin equipped with three berths which may be made into comfortable beds at night or converted into roomy drives during the day. The walls of all cabins are padded with kapok to make them more comfortable. Large electric fans, which may be opened or closed as conditions, are located in the cabin walls. Behind the cabin doors is a completely equipped venturi, tank and a spare tire locker. The cabin is provided with an exhaust heater so that they may be kept at any desired temperature even in the coldest weather.

The structure of the tail, which are of corrugated metal, are similar to the wings, with the exception of having the rear spars and shorter spars and chord. The landing gear has a trend of fifteen feet. The main landing gear struts extend from the wing up to the engine mount. Both the landing gear and tail wheel are fitted with an air cylinder and non-pressure rubber springs. Each wheel is equipped with an independent hydraulic brake which can be applied by a lever in the control cabin, so that the plane can be slowed up on landing, or by applying one brake at a time can be made to turn in a very small circle.

The three engines are fed by gravity from tanks in the wings. Over 200 gal. of fuel is carried giving a range of 500 mi. (20 hr.) The exhaust manifold passes up through the wing with the vent at the tip. The wings are equipped to prevent accumulation of frost. The engines, which are equipped with inertia starters, can be operated independent of each other or in unison on the same way engine.

For night flying the plane carries the standard red and green navigating lights and also a pair of searchlights, located



View of plane's wings/body showing engine mounts and navigating instruments.



Passenger compartment showing window shades and adjustable berths.

under the wing tips. Electric lights operated by a storage battery are provided in all cabins.

The specifications are as follows:

Span	.....	40 ft. 10 in.
Length	.....	40 ft.
Wing Area	.....	518 sq. ft.
Height	.....	15 ft. 8 in.
Wing Spread	.....	6 ft. 6 in.
High Speed	.....	110-114 m.p.h.
Cruising Speed	.....	100 m.p.h.
Stalling Speed	.....	50 m.p.h.
Radius of Turning	.....	300 mi.-5 hr.
Wing Empty Weight	.....	3,200 lb.
Useful Load	.....	4,000 lb.
Total Weight Loaded	.....	8,200 lb.
Gasoline Capacity	.....	250 gal.
Wing Load per sq. ft.	.....	15.45 lb.
Power Load (lb. per h.p.)	.....	23 lb., three engines 15 1/2 lb.
Width of Cabin	.....	4 ft. 6 in.
Height of Cabin	.....	5 ft.
Length of Cabin	.....	15 ft.
Passenger Accommodation	.....	120 or 150

## Two New Caterpillar Club Members

The California National Guard Air Service now boasts of at least two members of the famous Caterpillar Club. Capt. H. J. Cooper and Lieut. Elmer Patterson, members of the 11th Composite Squadron, 4th Air Corps Division, California National Guard, obtained the A-12 biplane plane, which they had been piloting, fell from an altitude of 2000 ft., as a result of the failure of one of the wings. Both men took in their parachutes and landed almost simultaneously within a few hundred yards of their plane.

## Exports Increase for First Quarter

Exports of aircraft, surplus engines and parts, other than from, during the first three months of 1927, were valued at \$44,213. This figure represents an increase of approximately 75 percent over the corresponding period of 1926, at which time the value of such exports amounted to \$25,302.



Three three engine motorplanes used by the Standard Oil Co. of Indiana.

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## PICTURES IN THE NEWS



ABOVE: A Dornier Wal flying last. Captain F. T. Courtney, British aviator, will use a plane of this type on his Europe to America flight.

BELOW: Mrs. J. Don Alexander choosing the 1934 Eagle-rock plane to be manufactured and sold by the Alexander Aircraft Co., Denver, Col.



ABOVE: The remains of Commander Byrd's trans-Arctic Fokker monoplane "America" after it had been located where by the natives of Vin-Sau-Mai.



LEFT: The "America" crash 200 yards from the shore of Vin-Sau-Mai, France.



BELOW: An Indian aerial ambulance that carries passengers and has room for two stretchers. A plane of this type is shown at each service.



ABOVE: Mrs. W. Boeing choosing the Boeing mail plane at the inauguration service of the new air mail service between San Francisco and Chicago, held at Crissy Field, San Francisco.

BELOW: Postmaster James Powers of San Francisco, (right) receiving in W. Boeing, president of the Boeing Air Transport Co., an official air mail carrier at San Francisco.



## Descriptive Notes On the Ford Tour Planes

*Wright Whirlwind Engines, Metal Propellers, and Wheel Brake Equipment on Majority of Entries*

N EARLY ALL the planes in the recent Ford Reliability Tour are the result of seasonal refinements at various design. Of the thirteen competing planes, ten were similar to machines in previous Reliability tours. They were developed by repeated improvements on one type of plane. The other three are developments of the past year, two of which the Glenns and the Hamiltons, are closed cabin monoplanes, the others, the Ford Aerodials, being a closed cabin biplane. The first two planes mentioned finished in first and second places respectively.

The planes that competed in the tour are a fair criterion of the general trend in American commercial airplane design. Every manufacturer except the Aerial Service Corp. had an entry powered by an air-cooled engine. In each case it was the Wright Whirlwind equipped with a metal propeller. The GNS engine seems to be rapidly disappearing, only one being used in the tour. It seems that closed cabins are increasing in favor, open cockpits being on only the Waco, the Eagle, and the Pittman Mustang. Monoplanes with cantilever wings, set at the top of the fuselage above a closed cabin, have been increasing in popularity in the past year. The general tendency in construction is a welded steel fuselage with wooden wings, and all-metal, fabric covered tail sections. A single bay has now become standard practice in biplanes. In landing gear construction the trend is toward a wider track, all shock absorbers, and independent wheel brakes. A flexible tailwheel is rapidly becoming standard equipment.

Except for numerous refinements in design most of the planes resemble those used in the tour last year. The Aerial Service Corp. and the Advance Aircraft Corp. were the



The Englebach Special which had the lowest average speed in the trial run.

only contenders who had entries in the first reliability tour in 1925. The entry of the Aerial Service Corp., the Mercury, Jr., is the standard plane that was used in 1925. It finished third this year while in 1925 it had a perfect record and it was forced down on the last lap due to a stroke. H. C. Moncrieff, the pilot of the Mercury, Jr., is the only pilot who has competed in all the reliability tours. Last year the Mercury Arrow was forced out on the last day with a broken landing chassis. At that time it was in third place.

There were four Waco entries this year as contrasted with two entries in each of the previous tours. The three planes



The Ford Special all metal three engine plane which accompanied the competitors on the Ford Tour. Had the plane been competing it would have been fourth place.

were all Waco Cubs, three powered by Wright Whirlwinds and the other by a Hiose. A Waco fitted with a Fairchild-Gemmer engine was entered in the tour but did not compete. The Waco Cub is a vast improvement over the previous Waco models both in appearance and performance. The landing gear is of entirely new design, using of the V type employing an all shock absorber. An aileron section is used, with better voice is observed. A slight change in the wing gives the fuselage a much more streamline form. It is claimed that the high speed is 13 m.p.h. faster than that of the Waco Waco.

It is unfortunate that neither of the Alexander Englebachs completed the tour as contestants. One was delayed at Pittsburgh due to a broken connecting rod isolating the rear wheel. The other left the tour at Omaha for personal reasons. The new Englebach is powered by either the Wright Whirlwind or an GNS. The Whirlwind Englebach is not an GNS

model equipped with a Whirlwind engine, but is a special job throughout. This plane made the last time at the speed trials, doing over 130 m.p.h. The general appearance of the Whirlwind and the GNS models is much the same though some of the structural members were altered to carry the larger engine. The trend of the V-type landing gear has been improved, metal tail sections substituted, fairs improved, and landing changed to give the plane a better appearance and higher efficiency.

The Ryan entry, the Whirlwind, escaped Brumfield has much better lines than the original Douglas using the Wright R2 engine. It is a vast improvement over last year's entry the M1 powered by a J1 engine. In appearance the Brumfield is very similar to the XV-P, used by Colonel Lindbergh on his trans-Atlantic flight. The main fuel tank is replaced by a passenger cabin, the pilot moved forward, and the ailerons extended to the wing tips. The wing area



The Glenn-Dorville as compared to the Ford Tour.

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The Waco is of the Advance Aircraft Corp., Troy, O. May see new type of landing gear NATIONAL AIR RACES, SPOKANE, WASH. SEPT. 23, 24

## TOUR ENTRY TABULATIONS

Plane	From	Time	Place	Time	Place	Time	Place	Time	Place
Atlantic Express	10	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	11	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	12	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	13	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	14	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	15	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	16	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	17	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	18	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	19	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	20	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	21	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	22	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	23	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	24	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	25	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	26	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	27	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	28	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	29	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00
Atlantic Express	30	A. A. Brown	Wright, D. 1	4:00	1:00	1:00	1:00	1:00	1:00

in low and the landing gear, which is much wider than that on the 301 or the original Bessie, is of similar structure to that on the XY-1. As on the trans-Atlantic plane, floats are used in turning between the main and the wing.

The Pezanne-Morling was completed just in time to enter the Philadelphia Tour. This plane was designed primarily for the transportation of mail over the Atlantic coast route from New York City to Atlanta, Ga. It is similar to the Pezanne-Morling except for the engine, which is a Wright Whirlwind. Mail is carried in the fuselage under the upper wing. The nacelle is just behind the main prop. In the high speed trials the Morling was second with 137.7 m.p.h., carrying a payload of 570 lb.

A new development this year is the Dole-Alexander, a closed cabin biplane with the upper wing of greater span than the lower. It is a five passenger job with steel fuselage, wooden wing, split landing gear, and a Wright Whirlwind engine driving a Standard fixed propeller.

Second place in the race was won by the Hamilton cross-plane, an original design having an all metal internally braced wing set in the top of the fuselage. The cabin windows are



(Continued From Previous Page)  
Three machines, one of the first two.

now, being transparent glass set in the wing root instead of in the sides of the fuselage. The plane is of all-metal construction with a Wright Whirlwind engine driving a Hamilton metal propeller.

After them the wings the Stearns crossplane, and the



The Pezanne-Morling which was only completed a few days before the start of the first tour.

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Bacon-Detmold are very similar. The fuselage, tail section, and landing gear are almost identical, except that the nacelle is of slightly heavier construction to carry the greater load. The color of the nacelle is more sparsely, but the nacelle is heavier than the two other planes in addition to the pilot's seat. In the rear of the cabin is a space for 100 lb. of baggage. In both planes the motor, motor, fuel, and landing gear, and tail section are of steel tube construction. In fact the only major structure in the plane are the spars, stamped metal ribs being used in the wings.

## Plane and Liner Mail Service Proposed

According to Second Assistant Postmaster General Elmer, the suggestion of General Robert E. Byrd for a combined day and night service across the Atlantic involving the meeting of crossing ships 200 or 1,000 mi. at sea and the combining of ordinary ships with mail-carrying passenger and mail is not a new one.

For nearly two years the Post Office Department has been trying to interest aviation companies in the proposition but to this has not received sufficient encouragement to warrant the making for bids.

Regular service has been in operation by the Department for four years between New Orleans, La., and the mouth of the Mississippi, and for seven years between Seattle, Washington, and Victoria, B. C. Both of these routes are 20 to 40 mi. in the handling of mail and in the case of emergency mail when some disaster in either of the ports, the airplane service, by carrying the vessel often saves a week or more at times.

It has been the desire of Mr. Elmer to inaugurate a similar service out of the port of New York, using airplanes which could land in the water for mail in use and take on mail and passengers from the crossing ships and overhead communication with ferry-landed letters and passengers. The Department has the funds which will be used to contract for such a service and as soon as notification can be found willing to bid on it bids will be asked from Mr. Elmer's side.

A service, though, the amount of which has not yet been worked out, would be added to the regular postage rate on the proposed service. No such change is made in the present service out of New Orleans and Seattle but it would be necessary on an Atlantic service because of the greater distance and the increased hazards.

Another proposition under consideration by the Department is the proposed to operate this service from New York and New Brunswick, extending the trans-Atlantic line as they stand the great check in the vicinity of these lands, and connecting with a land air service between New York and New Brunswick and New York. This would save even more time than the other proposal but would involve the establishment of an international air service for which funds could not at this time be devoted.

## Pennsylvania Air Board Appointed

Recent news has been reported by Governor Fisher to act as Pennsylvania's first State Aeronautics Commission. The members of the commission are: W. D. Arvey, of the Public Service Commission; Major John S. Orvis, commanding the Pennsylvania National Guard Air Force, Philadelphia; N. Taylor, chairman of the Aviation Committee of the Philadelphia Chamber of Commerce; Mayor Charles J. Miller, formerly a member of the State Air Service; R. S. Galt, president of the Keystone Aircraft Co. and Howard Bayle, executive secretary to the Governor. James F. Woodward, secretary of the Department of Internal Affairs, is a member on staff.

The Commission will be attached to the Department of Internal Affairs and will have the power to regulate the use of the air, license firms, and prescribe penalties.

## Many Air Feats Performed at McCook Field

McCook Field, Dayton, O., which for 12 years was the headquarters of the Engineering Division of the Army Air Service, and which has recently been closed as a general aviation airport, has been the scene of many accomplishments with airplanes.

It was at McCook Field, Aug. 2, 1918, that Major E. W. Schroeder, then chief test pilot at the field, made an altitude record of 23,114 ft., set simultaneously at the highest point because of a break in his oxygen supply tank, dropped for more than five miles, but proved in time to require removal of the ship and cause a safe landing.

Sept. 28, 1921, Lieut. John A. MacGraw climbed 27,500 ft. for a new world record.

June 13, 1923, Capt. J. W. Sherman wrote a record parachute jump of 54,000 ft. from a Martin bomber. In October of the same year Lewis, Venable and Oakley O. Kelly established a record for endurance by remaining in the air for 25 hr. 15 min. It was at McCook Field that the first trans-continental flight of three men, accomplished May 2 and 3, 1933, was formulated and the plane prepared for the trip.

Many weight carrying records were established by Lieut. Harold E. Morris being a Boeing biplane.

Lieut. Russell L. Mountain, McCook Field pilot, made a successful flight from down to deck across the ocean, being only four days.

Lieut. James Wendell, who successfully set a record for the flight, was the Schneider Cup winner in 1928. He will be here on chief test pilot.

Only recently Lieut. Wendell successfully completed an only deep, a last record before his retirement.

## In Days of Old



In 1910, Port Antonio, after the crash of the first plane, was the only place in the city where the first plane was built. The plane was built in the days of the first plane, and it was the only place in the city where the first plane was built. The plane was built in the days of the first plane, and it was the only place in the city where the first plane was built.

## Gates Flying Circus Will Conduct School

The Gates Flying Circus and Aviation Co., that for the past 12 years has conducted exhibitions throughout the United States, have opened a school for aviation at Toledo, Ohio, near Toledo, Ohio.

Students handling for the course will receive instruction from the pilot of the Gates Flying Circus. The course will include ground work, actual experience, rebuilding, flying, engine work in the shops, aerodynamics, navigation, and instruction in the Department of Commerce regulations. Resident tuition of commercial aviation will also be taught.





### Air Services Touching Geneva

Air services touching the Geneva district are as follows: Geneva-Lausanne-Sarraz, with special connections at Sarraz for Munich and Stuttgart, Geneva-Basle, with special connections at Basle for Nuremberg, Zurich, Brussels, and Paris; Geneva-Lyon, with direct connections at Lyon for Paris, Geneva-Strasbourg, with connections at Strasbourg for Nancy; Basle-Cham-de-Franch-Lausanne. All these lines are now in operation with the exception of the Geneva-Mannheim line, which will be put into operation during July.

Through services, reaching over nearly all of Europe and part of northern Africa, are as follows: Berlin-Erfurt-Stuttgart-Basel-Geneva, Hamburg-Bremen-Berlin-Trarbach-Basel-Geneva, Toulouse-Vannes-Marseille-Nice-Monaco, Madrid-Barcelona-Marseille-Geneva, London-Paris-Lyon-Geneva, and London-Berlin-Basle-Geneva.

The lines touching the Geneva district are subsidized, as are all the Swiss lines, jointly by the Federal Government and the cities served. At present it is thought that the Geneva-Basle and the Geneva-Zurich lines are beginning to show profitable returns, and the officials expect the Lyon-Paris-Basle route to show a favorable balance in the latter part of the summer. Up to the time these lines the lines touching Geneva has averaged about 50 percent of capacity.

All the lines are equipped with planes of the enclosed make-type, with a seating capacity of four to six persons. The lines to Zurich use the Fokker (Dutch-German) monoplanes, and also the German Dornier planes, made at Friedrichshafen. The line which is being started to Lyon will use the French Fokker.

The airplanes are maintained entirely by the cities which they serve and are used by private individuals and aviation clubs as well as by the passenger line.

### Belgian Aviation Company Makes Report

The Societe Anonyme Belge de Constructeurs Aeronautiques, commonly known as S.A.B.C.A., has issued a short annual report for the year 1936. They report total assets of some 14,800,000 francs, and liabilities, including capital stock of 10,000,000 francs, and a profit on the year's operations of approximately 3,800,000 francs. During the year the company built a factory for turning out all-metal airplanes. A first plane destined for use in the Congo, has been produced here, and has given completely satisfactory results, and the Government has authorized an expenditure of 1,000,000 francs on these planes. The total output for the year was valued at over 14,800,000 francs. The company is pushing forward the preparation of a document for the licensing of aviation engines. They acquired loans to manufacture the Belgian Super six-cylinder engine, and will commence its production during 1937.

### Dutch Parliament Approves Subsidy

The subsidy agreement between the Dutch government and the Royal Aviation Co. which was approved recently by the Second Chamber of Parliament, will probably be accepted in its present form by the First Chamber within the near future. It is believed in The Hague. The object of the new bill, it is said in Rotterdam, is to promote the air service between the Netherlands and other countries through the K.L.M.

In the explanatory Memorandum it is pointed out that since 1929 a subsidy has been awarded to this company. The amounts which formerly led the State to grant a subsidy, are still valid. The financial profit has remained considerably below the estimate, so that the Dutch treasury is thought compelled to dispend for a longer period on State assistance than was at first expected.

The average costs per ton-kilometer, calculated over the total working cost of the company, have dropped from 474 guilders in 1923 to 1.56 guilders (pennies) in 1936. The total cost, however, is not yet covered by the revenue.

### Best Field Equipped for Night Flying

On April 30, 1937, the Flying Field Association ("Aviation leader club"), organized in 1926, inaugurated the new building constructed during the last winter at a cost of about \$100,000. Besides the four large hangars, there are a station building, machine tools, oil tanks, and lighting system for night landings.

Although a regular night air service may never be established, it is considered important that airplanes be enabled to make entry starts and landings, and for this purpose the modern lighting equipment has been installed. To facilitate the finding of a field a beam light has been placed on the roof of the large hangar. Its clear weather light can be seen at a distance of about 50 miles. It has the great advantage of being easily distinguished from other lights of the city and of not blinding the aviator.

Once the airplane has found the field, signals must be given to inform the pilot whether he may land. For this purpose four signal lamps are mounted on the roof of hangar No. 1, one of them red and two green. The green means the permission to land, the red means signals that a landing may not be made. If permission to land is granted, the landing space is illuminated by means of a flood light which is mounted on wheels and may be shifted to any required position.

All required obstacles on or near the flying field have been marked by means of red lanterns, so, for example the radio antenna, a factory chimney, the steeple of St. Nicholas church, etc. It is proposed to outline the entire flying field by means of red lights placed at intervals of from 50 to 100 meters. Every time a landing takes place at night the reserve group is kept going, so that in case of emergency the entire lighting system of the field may be switched on without loss of time.

### May Convert Evers Field into Airport

A project for transforming the Brussels Aviation Field, at Evers, into an airport is being studied by the Administration of Aeronautics. The building of the field will be considerably increased, and a beacon light with a radius of action of six km. will be installed. New hangars will receive devices for night large commercial planes. Waiting rooms, passenger offices, and telegraph and telephone stations will be established. A wireless post for broadcasting and the necessary will also be installed, replacing the present installation which has an insufficient range. The Brussels-London air route will be lighted at Alost, Ghent, Bruges and Orléans. The Brussels-Paris, Brussels-Basle, and Brussels-Amsterdam routes will also be marked by lights for night landing.

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## Side Slips

By ROBERT B. GRIGGS

### "New York to Rome Flight, Girl's Aim" (Herald)

If girls aren't any better at aiming airplanes than they are at golf, golf balls and automobiles, we suggest that, after the flight gets under way, landing field lights be kept burning and a sharp look-out maintained all of the way from Ohio to Illinois.

The newspaper accounts that Andrea Gann, pilot of a "Waco" plane, have been selected to take the place of Mercedes Brindley as pilot of the Farmington-Trenton plane. It seems as if M. Gann might have been a good way to have as the pilot of the "Andrea" on a recent flight and race night.

Mr. Levine is quoted in the press as estimating that the establishment of a trans-Atlantic mail service would require a capitalization of \$10,000,000. If there is some one who has \$5,000,000 to invest and who is looking for a partner to join in starting a trans-Atlantic mail service, we would be glad to talk business with him.

We will with suitable pride on reading the announcement that Calumet Air Transport will start, probably be started by you, doing service on the route to New York route. You will recall that it wasn't as very long ago that

we pointed out that the British were heading a daylight episode of carrying a series of planes down on board, whereas American aviation was so far behind that we had no aircraft capable of serving more than tea during flight. In fact we pointed it out not only once, but whenever we needed an extra paragraph to fill our weekly stint. Now we take it that this great advance in aviation is directly traceable to our efforts in the matter (because of putting myself on the back). The news does suggest to state how many sources were being served with the dinner, but we trust they are no less than eight in number.

### "Bertaud Picks Hill for Flight to Rome" (Herald)

Apparently Bertaud thinks that the record of such work by the "American" will not be enough to assist his take-off.

This recent story of long distance flights we have been experiencing has brought up another development in aviation which we hope to correct before it becomes a habit. Lately the papers have printed numerous pictures of some of the aviation people in take three trips, sitting indoors, apparently in some hotel room, and reading maps with the aid of a full flying suit, helmet and goggles. Also, in almost every case, it has been necessary to point out some place on the map with a few such people which is said to be the top. The Lindbergh, Chamberlain and Byrd expeditions got through this stage very nicely, we think, and managed to look over their maps without the protection of curtains, and if there was any pointing of the map to be done, it was with a perfectly good forefinger. The great numbers of photographs which are printed of prominent persons, who are telephoning with the back of the phone held down with a thumb, is becoming enough without developing similar classes in "radio airplane business".

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# AIRPORTS AND AIRWAYS

## Cincinnati, Ohio

By R. Allen Hay

The Western planes competing for the Ford Ford Trophy in the National Air Race arrived promptly at 4:30 on Tuesday, July 5. The first plane to reach Cincinnati was the Grady entry, a Whorlwind Waco, flown by John Paul Biddle of the Eastern-Biddle Company who was as anxious to get "back home" than to fly the 206 miles from Columbus to Cincinnati in 40 days. Charles Meyers, another Cincinnati boy, piloting an airplane plane, made the distance in 54 min. The other planes arrived at intervals of about 30 sec. The last plane to arrive was the Eaglehawk, being flown by Fred Buehler. This was the only G.E. plane in the race and the sturdy little engine had to work overtime to keep up with all the high-powered planes. The majority of planes were standard passenger carrying jobs. The two-passenger open cockpit planes are passing out and large enclosed, completely upholstered and soundproof planes are coming to the fore.

The planes left Cincinnati the following morning for Louisville, which distance the pilots expected to make in an hour. In the last Ford Ford Trophy race there were no Cincinnati planes. Last year there was one, and this year there are three. They are all Cincinnati boys and are known here by John Paul Biddle, Charles Meyers, and J. D. Wood.

Following the arrival of the planes in Cincinnati, the flies at Lusk Airport stayed in air circles. Shirley Hoffman

delighted the large crowd at the field with his clever stunt flying, and Hans Mears displayed his nerve by hanging from the leading gear of a dust-flying Waco. But in the afternoon Meyers did an exhibition jump with a parachute and came out putting a good landing. He evidently tried to simulate his drift properly and as a result landed on so small as the Little River river, which is near the airport. The crowd which viewed the plane of the National Air Race in Lusk Airport was easily twice as large as last year, showing that Cincinnati was not fast becoming "a dry spot."

During the greater Lindbergh celebrations in Washington and New York the Eastern-Biddle Company included in one of the show windows of the Clegg-Henderson Motor Co. a collection of instruments such as used by Lindbergh on his flight to Paris. A Barnell propeller and numerous photographs magnified the exhibit, which attracted much attention as the store is now the heart of the city.

The Eastern-Biddle Company is doing a good business and expects to have a heavier race. There are many students on the roster of dust flying school and there are receiving excellent training on a dust Waco. Orders for the new Waco. You are coming in quite fast and both T. Harbo Buehler and Paul Biddle are kept busy supplying the demand.

The double highway furnished by July 5 and 4 year Lindbergh Watson at Lusk Field, New York, an extraordinary to ships into continental air exhibition. About 25,000 people visited the airport on Sunday, and about 30,000 attended the



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sky circus on the Fourth of July. The main thrill on both days was furnished by Serg. P. A. DeWitt, parachute jump-assembler. DeWitt was paravanned twice attempting to break his descent opening record of 3,190 ft. by each round, but he did surprise the crowd by falling nearly 1,800 ft. below opening his chute. Harold Kiefer substituted the spectators with a variety of stunts which performed in a fast Travel Air. The ladies' assistance and parachute jump also scheduled to take place on both days had to be called off on account of the strong winds which prevailed.

Hundreds of people who visited Grand Field took their first flight and enjoyed it immensely. Watson had five planes on the field, and there were in constant use. Elmer Watson can always be found in the cockpit of his favorite machine, a 4-place open-cockpit 128 Hmo job. Stacey Eckberg flies the OX-5 Travel Air.

Grand Field, or Watson Airport, as it is also known, has been improved during the spring. The new hangar, capable of housing four planes, has been completed and is an attractive and useful addition to the field. A 50-ft. tower bearing a powerful searchlight has been erected alongside the main office, and is a big aid to night flying. The tower is desirable for many miles on the ground as well as from the air. Flood lights and boundary lights will also be added to the equipment, making Watson Airport one of the most modern in the Middle West.

A new mail-air delivery system for Chisholm was proposed by Walter Messing, residing before a group of pilots.

#### Springfield, Mass.

By Charles H. Gale

Aviation suddenly burst into life in Springfield late in June with the organization of two commercial aviation concerns to conduct a general flying service. Springfield Airplane Line, the first company to get under way is operating a limited

field at Longmeadow, a location which the city has been considering a long time for a municipal airport. Large crowds have been attracted in the field and passenger business has been brisk and on some days rushing.

The company will be the New England distributor for the Graham and Western Massachusetts distributor of the Waco, and has already sold one of the first two Graham's mounted at the field a short time ago. Graham work started almost immediately with the conclusion of the first plane and about twelve have applied for instruction. A small hangar is to be constructed to replace the old barns here temporarily used; the field has been undergoing treatment by a lawn mower and steam roller and is now in good shape, and the road out to the field from the main highway will be added. The company has been making the improvements on the field to make it as attractive as possible.

Harry J. Horner, president and chief pilot of the company, was trained in the Army and since the war has piloted over 2000 hours in the air as a commercial flier. He conducted a flying school and engineering business for seven years in North Carolina. The other officers, all Springfield men, are: vice president, B. F. Markey of New York-Roseton Motor Service, Inc.; secretary, B. D. Sanford of the Henry Jones & Service Company; and clerk, A. B. MacCarty, of the New York-Roseton Motor Service Company.

Massachusetts Airways Corporation also plans to carry on a general aviation service in Springfield and in addition expects to put into operation an intra-city passenger line to satisfy demand which has not been answered yet. This company has taken the Englishway agency for New England and has placed a large order with the Deane manufacturing firm for early delivery. The Airways corporation has based a tract at Agawam across the Connecticut river from Springfield for its base. Passengers will be carried and the field improved at once.

The organizers of this concern are local men who have had



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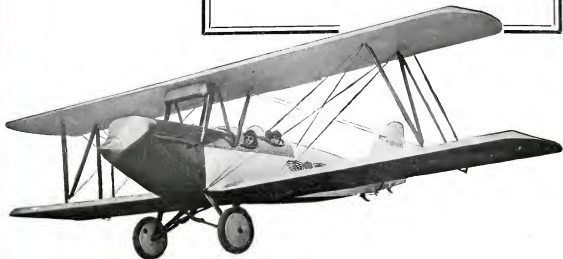
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